EXECUTIVE SUMMARY

ES-1 BACKGROUND

San Eljio Lagoon is a coastal wetland formed where Escondido and La Orilla creeks meet the Pacific Ocean in the city of Encinitas, San Diego County, California. The lagoon provides habitat for sensitive, threatened, and endangered plants and animals, including resident and migratory wildlife. There are also public recreational opportunities within the San Elijo Lagoon Ecological Reserve (Reserve), including more than 7 miles of hiking trails.

The Reserve is owned and managed by the California Department of Fish and Wildlife (CDFW) – 348 acres; County of San Diego Parks and Recreation Department (County DPR) – 567 acres; and the San Elijo Lagoon Conservancy (SELC) – 62 acres.

Over time, development and infrastructure constraints have affected the lagoon ecosystem and reduced habitat diversity. Urbanization within the surrounding Escondido watershed has accelerated freshwater storm flows, generated year-round urban runoff, and increased chemicals and nutrients within the lagoon. The ecological effects of increased runoff have been compounded by water obstructions to and from the Pacific Ocean. These obstructions include an inefficient channel system and lagoon mouth, a weir in the eastern basin, and the three major transportation corridors that perpendicularly traverse the lagoon: Coast Highway 101, the North County Transit District (NCTD) railroad tracks, and Interstate 5 (I-5). These constraints on the hydraulic connection between the ocean and lagoon affect tidal exchange and drainage of freshwater flows. As a result, water surface elevations in the lagoon are different than those of the ocean, and habitat distribution and quality are adversely affected. Such factors have led to a consistent degradation of water quality (e.g., elevated bacteria levels) in the lagoon and adjacent to the lagoon mouth, leading to beach closures during moderate to large storm events that flush accumulated bacteria to the ocean.

Restoration of tidal influence to the lagoon and enhancing freshwater fluvial flows out of the lagoon would restore the physical (soils and hydrology) and biological (biogeochemical/water quality and habitat) functions that have been degraded over the years. For the lagoon environment to be highly productive, it must be continually replenished with water and nutrients from the ocean. Regular tidal action also promotes improved water quality.

Efforts have been made since the mid-1990s to actively manage the lagoon. The San Elijo Lagoon Enhancement Plan (County of San Diego 1996) identified several opportunities for enhancement and restoration, mostly by reducing sedimentation and improving tidal exchange

and circulation. A long-term financial endowment was established in the late 1990s to actively fund inlet maintenance for tidal flushing. As a result of this endowment, the SELC has actively opened the mouth on at least an annual basis for more than 10 years, and the lagoon mouth has remained open over 80 percent of the time over that period. These management efforts improved habitat and water quality relative to the stagnant conditions that previously developed when the inlet was closed for prolonged periods. Other efforts involving removal of invasive species also resulted in some improvement to habitat quality. Although important, these efforts do not remedy the underlying hydraulic inefficiencies or loss of functional mudflat habitat within the lagoon.

The San Elijo Lagoon Restoration Project (SELRP or proposed project) is an effort to restore lagoon functions and services to the extent practicable given the constraints of surrounding development. The SELRP has evolved over a number of years and has involved many lagoon stakeholders. This environmental document considers several restoration alternatives resulting from those efforts.

A number of infrastructure improvements are planned within the lagoon by other agencies. These include double-tracking the railroad tracks extending through the lagoon as part of the Los Angeles to San Diego Proposed Rail Corridor Improvements (LOSSAN) project and replacement of the I-5 bridge as part of the North Coast Corridor Project, proposed by the San Diego Association of Governments (SANDAG) and the California Department of Transportation (Caltrans), respectively. Senate Bill 468 mandates that transportation improvements and regional habitat enhancements within the north coast corridor occur concurrently, unless construction in phases would result in an environmentally superior alternative to concurrent construction. Consistent with Senate Bill 468 (Kehoe), I-5 and railroad bridge improvements over the lagoon would occur concurrently with the SELRP. These bridges are not part of the lagoon restoration project, and the environmental analysis for these projects proposed (and constructed) by others is addressed in other documents (SCH # 2010111008/SCH No. 2004101076).

A Public Works Plan (PWP)/Transportation and Resource Enhancement Program (TREP) is being prepared by Caltrans and SANDAG to address comprehensive, system-wide improvements in this coastal corridor. That plan identifies mitigation and enhancement actions including completion of bicycle and pedestrian connections, trail improvements, new and improved transportation facilities, habitat restoration, and compensatory mitigation projects that would provide “functional lift” to coastal resources. The PWP/TREP identifies restoration of San Elijo Lagoon and/or Buena Vista Lagoon as opportunities. The stated intent is to improve ecological health and hydrological connectivity, as well as enhance critical coastal resources and habitats.

Additionally, the existing Coast Highway 101 bridge has seismic deficiencies and needs to be retrofitted. While bridge improvements are not a part of the lagoon restoration project, and would be implemented by others, the potential environmental impacts of the retrofit are disclosed in this document.

ES-2 PROJECT DESCRIPTION

The SELRP has two components: the restoration of San Elijo Lagoon and the disposal or reuse of materials excavated as part of the restoration.

Lagoon Restoration

The SELRP would restore San Elijo Lagoon with improved ecological function. The lagoon study area is composed of approximately 960 acres, primarily within the Reserve, and separated into four areas:

- east basin (east of I-5),
- central basin (between NCTD tracks and I-5),
- west basin (between Coast Highway 101 and NCTD tracks), and
- coastal area (between Pacific Ocean and NCTD tracks).

The SELRP would reconfigure lagoon elevations via grading/dredging and modify water flow into the lagoon via changes to the ocean inlet and lagoon channels. Elevations would be created to allow for appropriate inundation frequencies that would support specific habitat types. Generally, habitats range in decreasing elevation from mid- to high-saltmarsh, to low-saltmarsh, to intertidal mudflats, and finally to subtidal (submerged) lands. Reconfiguring the lagoon would be accomplished by dredging in some portions to lower elevations and use of that dredged material to create other areas. An example is placement of dredged material into wetland to create upland transitional areas to supplement existing natural transitional areas located around the lagoon perimeter. This helps increase the lagoon's resiliency to sea level rise in the future. Some excavated material would be used to create a nesting area in the central basin. The project would also reconfigure or retrofit existing Coast Highway 101 over the inlet of the lagoon, depending on the alternative. While it is anticipated that retrofit work of the existing inlet would be implemented by others, the design and environmental analysis for the work is addressed in this document.

Actions and construction methods specific to each alternative are more fully described below in Section ES-5, Proposed Action and Alternatives.

Materials Disposal/Reuse

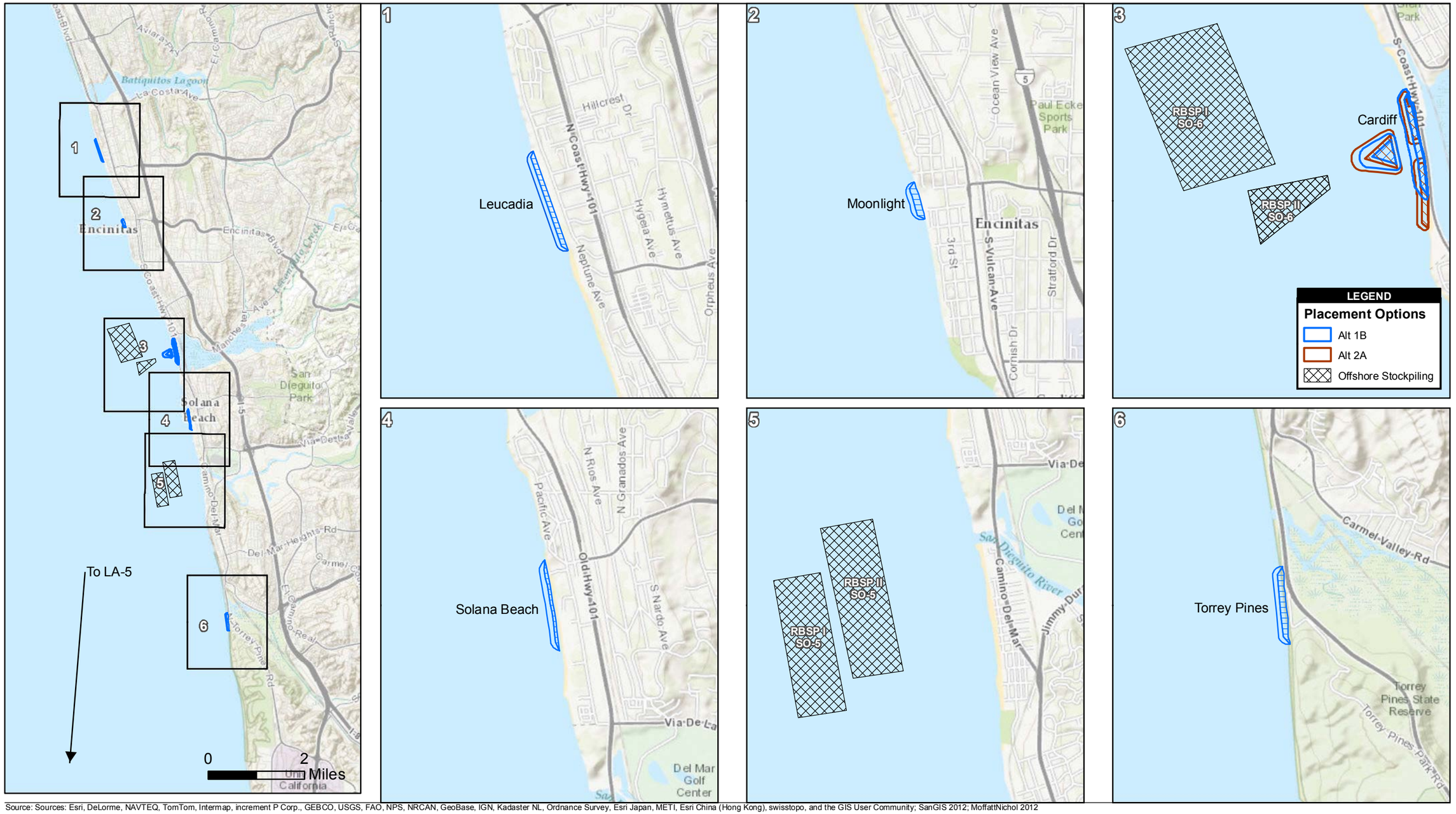
Restoration of the lagoon has the potential to generate more than 1 million cubic yards (mcy) of excess material through dredging operations. Various options are available for disposal or reuse of that material (e.g., offshore ocean and/or upland placement or disposal, placement on the beach or nearshore, and reuse on-site), depending on its characteristics. These disposal and reuse options are shown in Figure ES-1. Two alternatives would involve an overdredge pit in the central basin, which would provide better-quality sand for beach replenishment or nearshore placement, while accommodating disposal of finer-grained/poor-quality material on-site.

Materials Disposal/Reuse sites are as follows:

- Offshore disposal at LA-5 (permitted ocean dumping area)
- Offshore stockpiling at SO-5/SO-6 (two nearby sand placement sites used for prior regional beach nourishment projects)
- Nearshore (inside littoral cell) at Cardiff
- Onshore Beach placement at nearby beaches
    - Cardiff
    - Leucadia
    - Moonlight
    - Solana Beach
    - Torrey Pines
- On-site fill to create the transition areas and underlying the nesting area

ES-3 LEAD AGENCIES ROLES AND RESPONSIBILITIES

The proposed project requires evaluation pursuant to both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) because of federal, state, and local discretionary actions. The U.S. Army Corps of Engineers (Corps) is the federal lead agency responsible for compliance with NEPA. County DPR is the lead agency responsible for compliance with CEQA. Given the proposed project's complexity and range of potentially significant issues, the appropriate environmental document is a combined Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The Corps and County DPR have agreed to jointly prepare this EIR/EIS to address the federal, state, and local requirements for environmental analysis and permitting. Each lead agency, along with other responsible and trustee agencies, has various permitting authority, environmental documentation certification/ approval, and project approval responsibilities.



Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community; SanGIS 2012; MoffattNichol 2012

2,500 1,250 0 2,500 Feet

Scale: 1 = 30,000; 1 inch = 5,000 feet

Figure ES-1
Potential Offsite Materials Placement Sites

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Restoration of the lagoon would require issuance of a Department of the Army permit from the Corps and a Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB) pursuant to Sections 404 and 401 of the Clean Water Act (CWA) for discharge of fill materials into waters of the U.S. In addition, the project would need authorization/permit pursuant to Section 10 of the Rivers and Harbors Act for work in navigable waters, and, potentially, Section 103 of the Marine Protection, Research, and Sanctuaries Act for ocean disposal. The Corps is required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for potential impacts on federally endangered or threatened species, and with NMFS pursuant to the Magnuson-Stevens Act for potential impacts to Essential Fish Habitat (EFH). Accordingly, these regulatory and wildlife entities have key interests in the proposed project.

County DPR is part owner of the Reserve and manages it in coordination with the SELC and CDFW. As owner, the County will issue a right-of-entry permit for implementation of the project, and will certify the EIR in compliance with CEQA. Upon certification, the County will issue Findings and a Statement of Overriding Considerations, as necessary, with issuance of the Notice of Determination (NOD).

ES-4 PURPOSE AND NEED AND PROJECT GOALS

Over the past several decades, the lagoon system has gradually degraded due to the expansion of urban development within the upstream watershed. This development has altered the hydrology and, subsequently, the physical and biological functions of the lagoon system. Water quality has decreased and habitats within the lagoon have been rapidly converting to a less diverse habitat mix with greater freshwater influence. If measures are not taken to improve lagoon hydrology, muted tidal exchange and restricted water circulation will continue to degrade the physical and biological functions of the lagoon. Freshwater marsh and higher elevation salt marsh habitats will likely continue to expand and dominate the system, at the expense of more rare intertidal habitats. Sensitive plant and animal species currently dependent on the aquatic and intertidal habitats within the lagoon would be adversely affected by this conversion.

The NEPA purpose of the proposed project, as well as the Corps' overall project purpose, is to enhance and restore the physical and biological functions and services of San Elijo Lagoon by increasing the tidal prism to support a diverse range of native intertidal and transitional habitats.

The overall CEQA goal to protect and restore, then maintain via adaptive management, the San Elijo Lagoon ecosystem and its adjacent uplands can be further refined into four categories of objectives:

1. Physical restoration of lagoon estuarine hydrologic functions
2. Biological restoration of habitat and species within the lagoon
3. Management and maintenance to ensure long-term viability of the restoration efforts
4. Maintain recreational and educational opportunities

ES-5 PROPOSED ACTION AND ALTERNATIVES

Over the life of the project, various options for restoration of the lagoon have been considered, as well as various options for disposal of material dredged from the lagoon. Each of the alternatives evaluated would restore lagoon functions and services through dredging and grading to create a diverse matrix of habitats. Alternative 2A-proposed project and Alterantive 1B were found to achieve the overall NEPA project purpose described above in ES-4. Alternative 1A would not meet the NEPA project purpose.

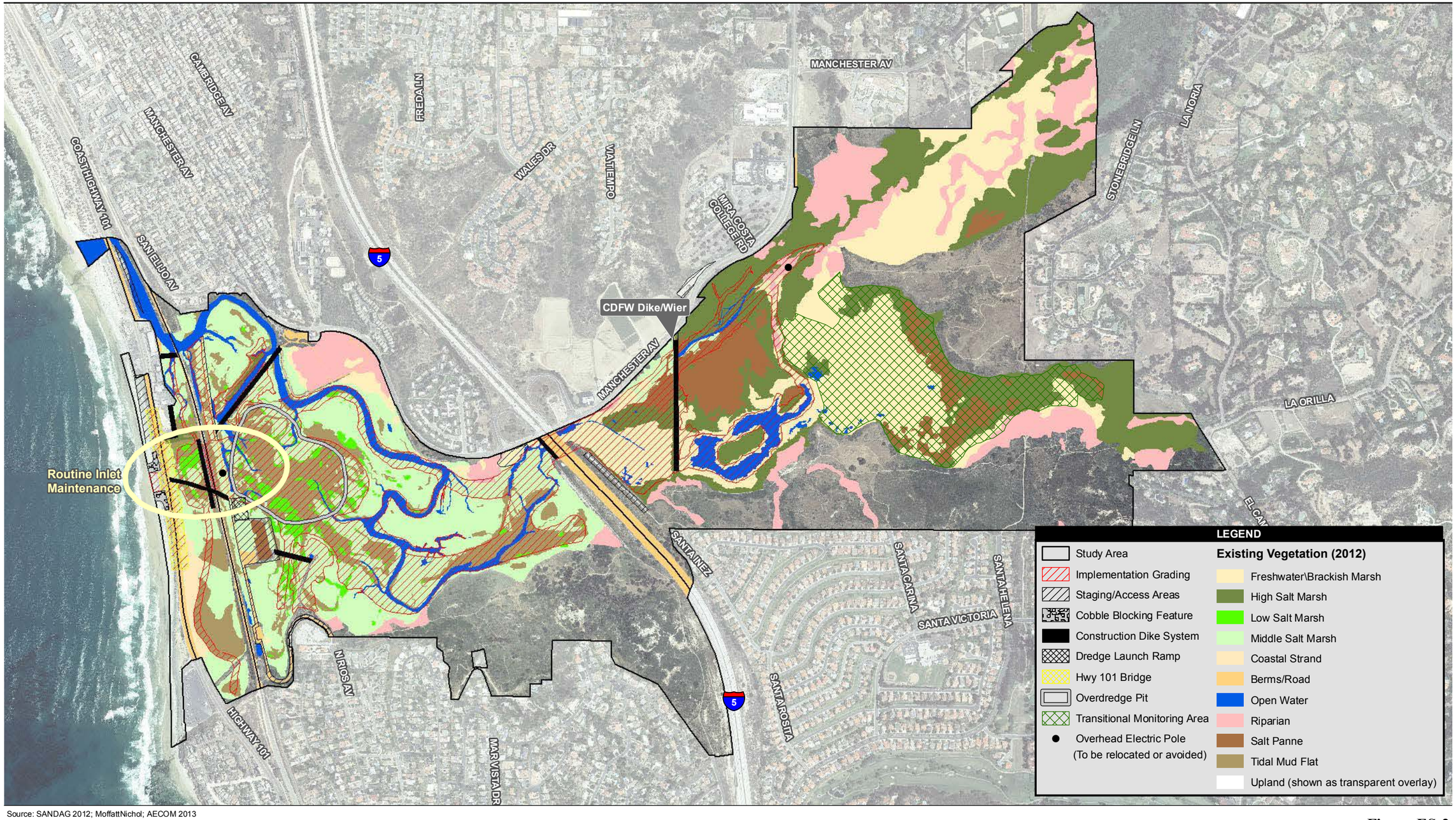
All four alternatives identified in this document are analyzed at an equal level of detail:

- Alternative 2A–proposed project
- Alternative 1B
- Alternative 1A
- No Project/No Federal Action Alternative

For the purposes of this document, the alternative resulting in the largest level of impact was identified as the proposed project in this Draft EIR/EIS. This designation is made for procedural purposes, and does not reflect a predisposition for implementation of that alternative. The Agency Preferred Alternative will be identified in the Final EIR/EIS based on information from this document and from the 404(b)(1) Alternatives Analysis to be prepared as part of the Corps process, and may differ from the proposed project. All alternatives identified in this document are analyzed at an equal level of detail to facilitate the ultimate selection of an alternative that reflects the most overall benefit to lagoon functions and services. The alternative that reflects the most overall benefit will be identified as the Preferred Alternative, the Environmentally Preferable Alternative, or the Least Environmentally Damaging Practicable Alternative (LEDPA), in compliance with CEQA, NEPA, and the Section 404(b)(1) Guidelines, respectively.

Alternative 2A–Proposed Project

This alternative, shown in Figure ES-2, would improve tidal action by constructing a new inlet south of the existing inlet. The new inlet would require stabilization through the incorporation of cobble blocking features (CBFs) at the beach and development of a “prefilled ebb bar” located in the nearshore area outside of the new outlet location. A new bridge along Coast Highway 101



Source: SANDAG 2012; MoffattNichol; AECOM 2013

1,100 550 0 1,100 Feet

Scale: 1:13,200; 1 inch = 1,100 feet

Figure ES-2
Alternative 2A
Limits of Disturbance

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would also be constructed to span the proposed new inlet location, and would incorporate a dedicated pedestrian sidewalk for access along the shoreline. The increased tidal action from the new inlet would also create a greater diversity of habitats than presently exist.

With this alternative, a new subtidal basin would be created just landward of the new inlet in the west and central basins to capture sediment entering the lagoon. The main tidal channel would be widened and redirected just west of I-5, and would then extend into the east basin. The southern channel and secondary channels within the central basin would also be improved. The existing channel in the east basin would be widened substantially and the existing weir would be removed. These actions would promote more tidal exchange east of I-5 and allow more freshwater flows to exit the lagoon. Man-made transitional habitat would be created by filling on top of, and alongside, the remnants of the weir. This habitat is intended to provide refugia in the form of continually transitioning habitat over time as sea level rises. Three other areas of transitional habitat above tidal elevations would be created in the central basin. Together, these would supplement the natural transitional habitat occurring in a band around the perimeter of the lagoon. A former sewage settling pond in the central basin would be filled and capped with sand for use as a nesting area.

The primary change in habitat distributions under Alternative 2A–proposed project would be an increase in open water areas/tidal channels and mudflat habitat within the lagoon compared to existing conditions. Open water areas and tidal channels would be increased in all three lagoon basins compared to existing conditions. Mudflat and open water/tidal channels would be actively created throughout the central basin and replace existing mid-marsh and low-marsh habitat. Similarly, open water/tidal channels and low-marsh would be actively created in the east basin where freshwater/brackish marsh currently exists. Increases to estuarine habitat (low-, mid-, and high-marsh) may also occur as a result of conversion of salt panne and freshwater/brackish marsh in the east basin as tidal expression increases.

Alternative 2A–proposed project would involve overexcavation of the proposed sedimentation basin so that poor-quality material (e.g., fine-grained) could be buried in an “overdredge” pit and covered with a sand cap. The good-quality (e.g., larger-grained) material from the overdredge pit in the central basin would then be available for beneficial reuse. It is anticipated that approximately 1.4 mcy of material would be exported for reuse for the initial implementation of Alternative 2A–proposed project. Approximately 500,000 cubic yards (cy) of this sand material from the overdredge pit would be placed in the ocean nearshore, west of the proposed inlet location to “prefill” the anticipated ebb bar that would form off the inlet.

Alternative 2A–proposed project would require a new Coast Highway 101 bridge at the new inlet location. The new bridge would not increase vehicular capacity along Coast Highway 101, but it would include a separated pedestrian walkway on the west side of the structure to ensure north-south pedestrian and bicycle access. Changes to the I-5 and NCTD crossings would be implemented by others, but changes to Coast Highway 101 are included in the proposed project. Bridge improvements at the I-5 crossing, as planned by Caltrans, would lengthen and deepen the existing channel opening. The NCTD railroad would remain in place and another bridge constructed by NCTD to span the proposed inlet, although the channel underneath the existing railroad tracks would require deepening for improved hydraulics as part of the LOSSAN Project. Rock armoring would be installed at all three features to provide channel bank and bridge abutment protection and prevent undermining by increased tidal/fluvial flows.

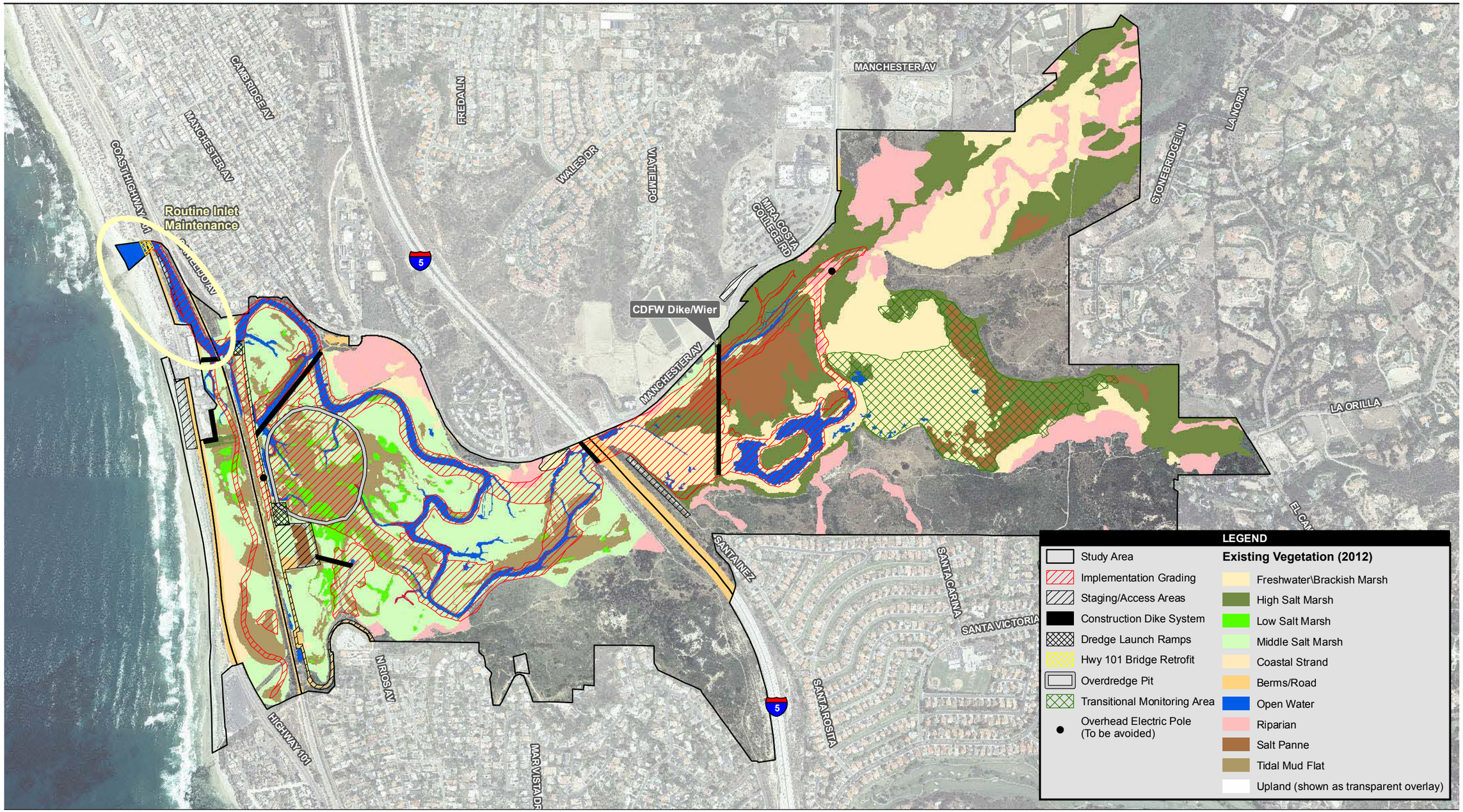
The nearshore zone off San Elijo Lagoon contains a high volume of cobbles and the proposed new inlet would minimize cobble migration into the lagoon through the use of CBFs. The CBFs would be two relatively short, low rock features along the sides of the tidal inlet channel.

Routine maintenance dredging would be required to maintain appropriate inlet connection to the ocean, and approximately 300,000 cy is anticipated to be dredged from the basin every 3 to 4 years. Maintenance would occur over a period of 5 months and the material is planned for placement on Cardiff Beach south of the new tidal inlet.

Alternative 1B

Alternative 1B, shown in Figure ES-3, would create a greater diversity of habitats relative to existing conditions through modifications to channels and habitat areas within the lagoon. The existing tidal inlet would remain and no CBFs would be required. The existing Coast Highway 101 bridge structure over the existing inlet would be retained.

Under Alternative 1B, the main tidal channel would be extended and a mix of mudflats and secondary channels created south of the main channel in the central basin. The southern channel and secondary channels within the central basin would also be improved. Existing emergent low-marsh would be retained to the extent possible to create a diverse habitat distribution in the basin. The main channel would be redirected just west of I-5 and extended farther into the east basin. The channel in the east basin would be substantially enlarged and the CDFW dike and weir would be removed; combined, this would promote more tidal exchange east of I-5. The tidal prism of Alternative 1B would be substantially increased compared to existing conditions. Several areas of transitional habitat above tidal elevations would be created in the central basin to supplement the natural transitional habitat that extends around the perimeter of the lagoon. These areas would also offer refugia for sea level rise.



Source: SANDAG 2012; MoffattNichol; AECOM 2013

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Scale: 1:13,200; 1 inch = 1,100 feet

Figure ES-3
Alternative 1B
Limits of Disturbance

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Alternative 1B would result in an increase in open water/tidal channels, low-marsh, mudflat, and created transitional habitat compared to existing conditions. Most of the increase in open water/tidal channels and mudflat habitat would occur in the central and east basins, and would result in a corresponding decrease in mid-marsh, salt panne, and freshwater/brackish marsh habitats. The open freshwater ponds currently maintained by the CDFW weir would be converted to open water/tidal channels and low-marsh habitat.

Alternative 1B assumes bridge improvements at the I-5 crossing, as planned by Caltrans, which would result in the channel under the I-5 bridge being lengthened and deepened. The existing bridges at Coast Highway 101 and the NCTD railroad would remain in place, although the channels underneath would require deepening for improved hydraulics as part of the LOSSAN project (planned for implementation by others). The seismically deficient existing Coast Highway 101 bridge structure would be retrofitted to current seismic standards, as analyzed in this document. Retrofit work may be implemented by others but is evaluated as part of this project (different than Alternative 2A, which would implement Coast Highway 101 bridge reconstruction). Rock armoring would be installed at all three features to provide channel bank and bridge abutment protection and prevent undermining by increased tidal/fluvial flows.

Alternative 1B would involve creation of an overdredge pit to provide larger-grained material suitable for reuse within the littoral zone. It is anticipated that approximately 1.2 mcy of material would be exported from the overdredge pit in the central basin for reuse for the initial implementation of Alternative 1B. Similar to Alternative 2A, Alternative 1B would fill the former sewage settling pond in the central basin and cap it with sand for use as a nesting area.

Inlet maintenance would require the removal of approximately 40,000 cy of sediment annually, utilizing the same approach as existing inlet management. That maintenance is anticipated to occur in spring (typically April) and require approximately 4 weeks.

Alternative 1A

Alternative 1A, shown in Figure ES-4, would implement the least physical changes to the lagoon. The main feeder channel throughout the site would be enlarged and redirected just west of I-5. The main tidal channel would be extended farther into the east basin, and existing constricted channel connections would be cleared and enlarged. The existing CDFW dike would be left in place, but two new openings would be created through it to allow tidal and fluvial connections. The tidal prism of Alternative 1A would be slightly increased compared to existing conditions. Existing habitat areas would essentially remain intact, although some freshwater habitat areas in the east basin are anticipated to convert to more saltwater-based communities due

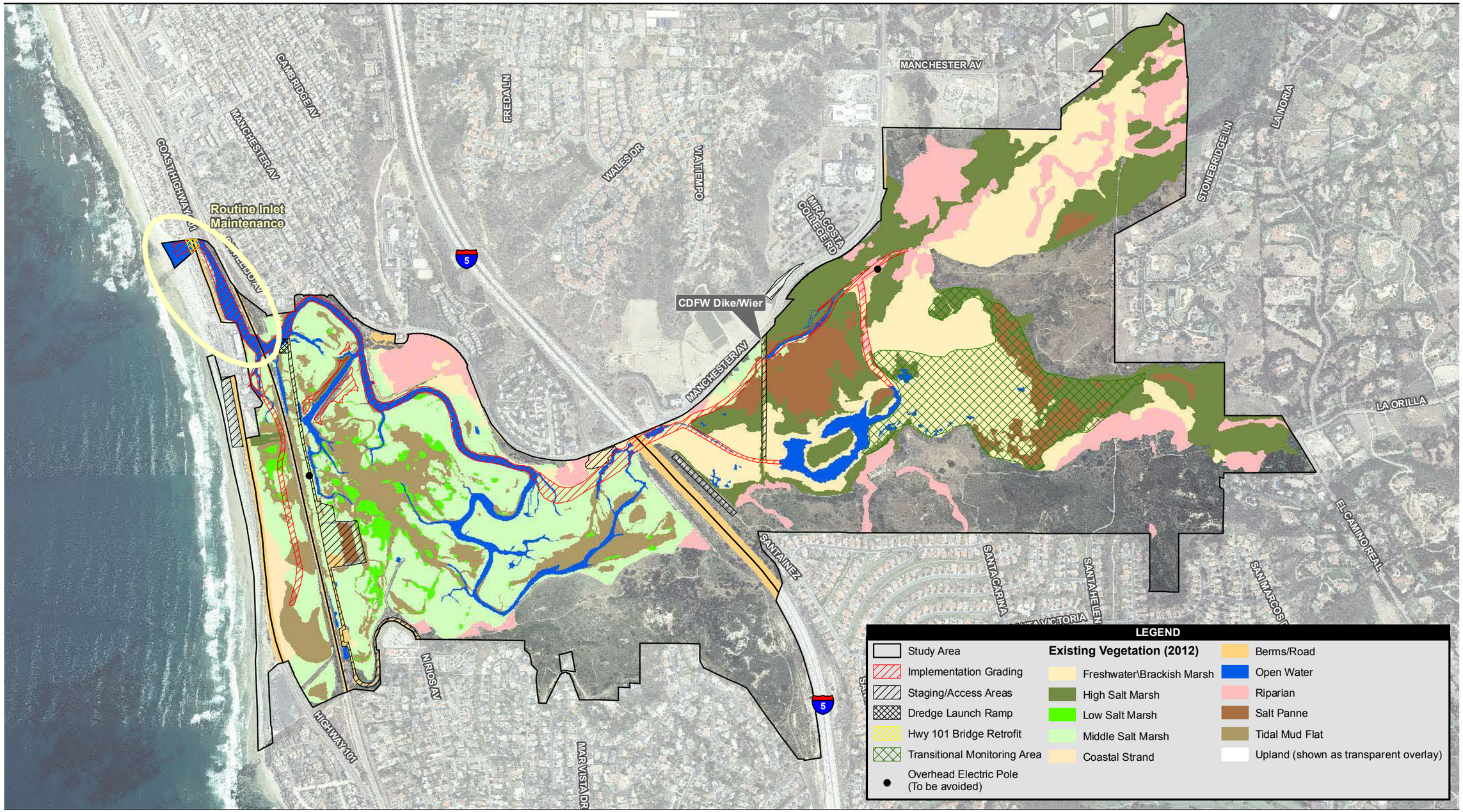
to enhanced tidal influence and the resulting changes in inundation frequencies. One small area of transitional habitat (refugia above tidal elevations) would be constructed in the northwest portion of the central basin.

Alternative 1A habitat distribution would result in a high proportion of mid- and high-marsh habitat. There would be a decrease of mudflat, open water/tidal channels, and freshwater/brackish marsh and an increase of low-marsh and high-marsh habitat compared to existing conditions. This alternative allows the continued conversion of mudflats to low-marsh and some existing freshwater marsh would be converted to high-marsh and open water/tidal channel habitat.

Channels under I-5 and the railroad bridge would be deepened for improved hydraulics (planned for implementation by others). The channel under Coast Highway 101 would also be widened slightly, but replacement of the bridge structure would not be necessary. The existing seismically deficient Coast Highway 101 bridge would be retained and retrofitted to meet current seismic safety standards. Retrofit work may be implemented by others but is evaluated as part of this project (different than Alternative 2A, which would implement Coast Highway 101 bridge reconstruction). All three bridge features would be armored to prevent undermining.

Approximately 160,000 cy of material would need to be exported to LA-5 for the implementation of Alternative 1A. Preliminary soil investigations and coordination with the Corps and U.S. Environmental Protection Agency (EPA) suggest the material would be appropriate for disposal at LA-5; however, additional Tier 3 testing and approval from the Corps and EPA would be required prior to disposal. Because dredging would be primarily limited to improving or connecting existing channels under this alternative, no areas large enough to accommodate an overdredge pit would be disturbed and no overexcavation would occur in this scenario. Without an overdredge pit, no large-grained material would be available from dredging and only material unsuitable for reuse as beach or littoral cell nourishment (e.g., fine-grained) would be generated. Alternative 1A would also utilize some material removed from the site to fill the former sewage settling pond in the central basin (approximately 35,000 cy) and cap it with sand for use as a nesting site.

Inlet maintenance would continue to be performed via existing methods. Approximately 35,000 cy per year would be removed from the inlet and placed either on the adjacent beach or in the nearshore. The process would take approximately 2 weeks and would be anticipated to occur in spring (typically April).



Source: SANDAG 2012; MoffattNichol; AECOM 2013

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Scale: 1:13,200; 1 inch = 1,100 feet

Figure ES-4
Alternative 1A
Limits of Disturbance

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No Project/No Federal Action Alternative

Under this alternative, there would be no dredging or excavation to improve tidal circulation, channel clearing, or other comprehensive actions to improve tidal exchange or conveyance of freshwater in high flow conditions. The lagoon inlet would remain in its existing location. The present spectrum of environmental constraints would continue to limit the quality and productivity of the lagoon.

Under the No Project/No Federal Action Alternative, conversion from subtidal and mudflat to a system dominated by salt marsh and riparian habitat would continue. This conversion would continue to occur fairly rapidly. Current functioning mudflat is an artifact of past freshwater impoundment and is not at a natural elevation for self-sustainable mudflat. Ultimately, the conversion of another 34 acres of mudflat is anticipated as the lagoon moves toward a state of equilibrium with current water levels and inundation frequencies. In addition, mid-marsh habitat would convert to high-marsh habitat and there would be a loss of open water habitat throughout the lagoon compared to existing conditions. While allowing the lagoon to revert to a more frequently close mouth condition could slow or halt this conversion, water quality would then be expected to deteriorate.

Under the No Project/No Federal Action Alternative, no materials would be dredged from the lagoon for the purpose of restoration. However, the practice of active management at the lagoon mouth is expected to continue to maintain tidal exchange with the ocean and allow fluvial flows to exit the lagoon. This exchange, although limited by the existing hydraulic constraints in the lagoon, maintains more acceptable water quality levels in the lagoon than would occur under no management.

Alternatives Comparison

The following tables provide a comparison of alternative characteristics relative to habitat distribution (Table ES-1), material removal volumes (Table ES-2), and materials disposal/reuse location scenarios (Table ES-3).

Table ES-1
Habitat Distribution Comparison for the Proposed Project and Alternatives

Habitat Type	Habitat Distribution (acres)[1]				
		Proposed			
	Existing	Alternative 2A	Alternative 1B	Alternative 1A	No Project/ No Federal Action
Avian Islands	0	2	2	2	0
Mudflat	63	102	71	25	29
Low-Marsh	13	23	51	44	51
Mid-Marsh	141	124	98	140	107
High-Marsh	120	107	124	145	167
Saltpan	37	17	30	35	37
Freshwater/Brackish Marsh	132	96	99	121	131
Open Water/Tidal Channels and Basins	40	74	67	34	24
Riparian	72	67	67	70	71
Coastal Strand	5	5	5	5	5
Upland & Others	299	292	295	299	299
Beach	15	14	15	15	15
Berms and Roads	23	24	24	24	23
Transitional (created)	0	12	12	2	0
Total[2]	**960**	**960**	**960**	**960**	**960**

[1] Existing habitat acreages are from 2012 mapping efforts and reflect habitat distributions at that time.
[2] Totals may not add due to rounding.
Source: Nordby and M&N 2013

Table ES-2
Materials Removal and Periodic Maintenance Comparison for the Proposed Project and Alternatives

	Alternative 2A–Proposed Project	Alternative 1B	Alternative 1A	No Project/No Federal Action
Initial Amount of Material Removed	1.4 mcy	1.2 mcy	160,000 cy	0
Estimated Post-construction Periodic Volume Dredged	300,000 cy	40,000 cy	35,000 cy	25,000 cy
Estimated Post-construction Periodic Maintenance Frequency	Every 3 to 4 years	Annually	Annually	Annually

mcy = million cubic yards
cy = cubic yards

Table ES-3
Materials Disposal and Beneficial Reuse Scenarios

Approximate Net Quantity of Material: **Alternative 1A = 160,000 cy of relatively poor-quality material that is only suitable for offshore disposal at LA-5** **Alternative 1B = 1.2 mcy (overdredging would occur to generate appropriate material for beneficial reuse)** **Alternative 2A = 1.4 mcy (overdredging would occur to generate appropriate material for beneficial reuse)**				
Type of Materials Placement	**Potential Disposal Locations**	**Maximum Volumes Proposed for Placement by Site**		
		Alternative 2A and Alternative 1B (cy)		**Alternative 1A (cy)**
Offshore Disposal	LA-5	0		160,000
Offshore Stockpiling (outside littoral cell)	SO-5/SO-6	1,000,000		0
Nearshore (inside littoral cell)	Cardiff	Alternative 2A	Alternative 1B	0
		500,000	300,000	
Onshore (beach placement)	Cardiff	300,000		0
	Leucadia	117,000		0
	Moonlight Beach	105,000		0
	Solana Beach	146,000		0
	Torrey Pines	245,000		0

Notes:
1. Nearshore materials placement quantity at Cardiff is greater in Alternative 2A because a new inlet would require construction of a prefilled ebb bar (Section 2.4).
2. Materials placement quantities exceed amount to be disposed of, or reused, to allow flexibility at individual placement sites.
3. Onshore beach sand placement sites are consistent with the 2012 RBSP (SCH # 2010051063) with the exception of Cardiff, which would extend slightly farther north and south along the coastline. Refer to Figure 2-11 for the proposed project's sand placement sites. While 2012 RBSP sites are proposed for use, the SELRP would obtain permits for placement, since the 2012 RBSP was a one-time project implemented in 2012.
4. Sand Compatibility and Opportunistic Use Programs (SCOUP) sites are not included as an option for materials placement in this EIR/EIS because the existing SCOUPs assume construction methods and other conditions that are not consistent with the SELRP (e.g., daytime construction only).

cy = cubic yards
mcy = million cubic yards

ES-6 OVERVIEW OF AFFECTED ENVIRONMENT

San Elijo Lagoon

San Elijo Lagoon is a coastal wetland with ecological resources that are important to the region, as well as a recreational and visual amenity for the community. The lagoon and adjacent uplands in the Reserve provide habitats that support sensitive species. The lagoon study area is biologically rich with over 20 species of fish, over 20 species of reptiles and amphibians, 24 species of mammals, and over 295 bird species (including 65 nesting), in addition to a complex suite of terrestrial and marine invertebrates. Included are six federally threatened and endangered birds, such as light footed clapper rail and least Bell's vireo. Biological surveys of the lagoon study area identified one federally listed plant species, Del Mar manzanita; one state-listed plant

species, Orcutt's goldenbush; and 20 additional special-status plants. A mosaic of habitat and ecosystems occurs, from open water to dense freshwater marsh. The existing habitat is linked directly to tidal inundation and frequency.

Materials Disposal/Reuse Areas

In addition to the lagoon study area, the geographical scope of this document includes areas outside of the lagoon that are proposed to be used as disposal/reuse areas for materials excavated from the lagoon, as described below. To date, the proposed disposal/reuse areas have not been approved by the Corps or EPA; however, a Sampling and Analysis Plan (SAP) was prepared for the SELRP (Appendix A). Both the Corps and EPA determined that the testing in the SAP is consistent with the Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual (Inland Testing Manual) testing procedures, which address lagoon-dredged material-placement options such as nearshore and onshore placement, direct lagoon placement, or offshore stockpiling at borrow sites within the 3-mile limit from the shore. Additional Tier 1–4 testing may be required prior to Corps and EPA approval of the SAP Results Report. Testing in accordance with the Evaluation of Dredged Material Proposed for Ocean Disposal (Ocean Disposal Manual) has not been completed. Additional Tier 3 testing would be required prior to EPA and Corps approval of any offshore disposal to ensure that the material is suitable and is in compliance with the U.S. Ocean Dumping Regulations.

Offshore Disposal

LA-5 is an ocean disposal site designated by EPA that can be used for the disposal of dredged material from federal projects. It is located in the Pacific Ocean approximately 10 nautical miles offshore and southwest of San Diego Bay.

Offshore Stockpiling

There are two potential offshore placement sites for the proposed project, SO-5 and SO-6. A portion of SO-6 is within 4,000 feet of shore, close enough for material to be delivered to the site via pipeline. While closer to land than LA-5, SO-5 and SO-6 are outside the "depth of closure," meaning material placed in these offshore locations will not return to the shoreline via natural ocean processes.

Nearshore and Onshore

Cardiff: Sand placement is proposed both in the nearshore ocean and onshore at Cardiff. The Cardiff site onshore is characterized by cobble beaches south of Restaurant Row. The site abuts Coast Highway 101 and is backed primarily by the lagoon. In its entirety, Cardiff State Beach stretches from Cardiff reef south to Seaside reef, encompasses approximately 25 acres, and has 6,550 feet of ocean frontage. The waters off of Cardiff State Beach include popular surf spots and also support commercial fishing and kelp harvesting.

Leucadia: The beach at this placement site extends approximately 0.5 mile from just south of the Grandview access stairs to Jasper Street. Adjacent land uses are predominantly residential, with some commercial uses along Coast Highway 101. This state beach is operated by the City of Encinitas. Popular and often crowded surf spots are found near the placement site and rocks are a hazard.

Moonlight Beach: The proposed Moonlight Beach placement site is located at the foot of B and C streets at Moonlight State Beach. The proposed site is approximately 770 feet long. Moonlight State Beach is operated by the City of Encinitas and has a wide variety of recreational facilities. The southern part of the site abuts the Encinitas City Marine Life Refuge (California Fish and Game Code Section 10913). Residential uses occur adjacent to the site, to the north and south. The beach area is relatively flat but quickly slopes up to the east, north, and south with multiple popular surf breaks along this reach.

Solana Beach: The proposed placement site in the City of Solana Beach is located just north of Estrella Street and extends approximately 4,700 feet (0.9 mile) south. Steep cliffs abut the placement site and the area consists of a gently sloping sand beach with scattered rocks and cobbles. Residential development and some commercial uses exist along the bluffs above the placement site. The bluffs and beach are severely eroded, and numerous efforts to slow erosion, such as riprap, the filling in of sea caves, engineered in-fills, sea walls, and other revetments occur along the bluffs and beach. Surfing can be popular at this location depending on offshore sand, swell, and tides.

Torrey Pines: The proposed Torrey Pines placement site is located within the jurisdiction of the City of San Diego and California Department of Parks and Recreation. The site stretches for approximately 1,620 feet and is located on Torrey Pines State Beach adjacent to North Torrey Pines Road. Nearby land use includes the open space of Torrey Pines State Beach/Reserve and Los Peñasquitos Lagoon. Riprap has been placed along North Torrey Pines Road to protect it from eroding further. Popular surf breaks in the vicinity are scattered beach breaks of variable quality along Torrey Pines State Beach.

ES-7 ENVIRONMENTAL CONSEQUENCES

The discussion of environmental consequences in this EIS/EIR provides independent analyses of the two project components: lagoon restoration and materials disposal/reuse under both CEQA and NEPA. The four lagoon restoration alternatives and each of the materials disposal/reuse locations are analyzed at an equal level of detail. CEQA conclusions below are identified as significant impacts, while those referencing NEPA conclusions are identified as substantially adverse.

Under CEQA, resources that would result in less than significant or significant impacts that can be mitigated and reduced to less than significant for all alternatives include the issues of land use and recreation; hydrology; oceanography/coastal processes; water and aquatic sediment quality; geology and soils; cultural resources; paleontological resources; public services and utilities; and hazards and public safety.

Under NEPA, resources that would result in no substantial adverse effect include land use and recreation; hydrology; oceanography/coastal processes; water and aquatic sediment quality; geology and soils; cultural resources; paleontological resources; air quality; noise; socioeconomics and environmental justice; public services and utilities; and global climate change and greenhouse gases. Substantial adverse impacts would occur to biological resources; visual resources; traffic, access, and circulation; and hazardous materials and public safety.

Table ES-4 at the end of this Executive Summary summarizes the potential effects under each alternative for both CEQA and NEPA and identifies whether those effects can be mitigated.

Significant Unavoidable and Substantial Adverse Impacts

Under both CEQA and NEPA, significant unavoidable and substantial adverse impacts would result to biological resources due to temporary habitat loss, habitat loss effects on Belding's savannah sparrow (under Alternative 2A and Alternative 1B), and construction noise effects on bird species (under Alternative 2A, Alternative 1B, and Alternative 1A). Mitigation is provided but would not reduce impacts to less than significant.

Under both CEQA and NEPA, significant unavoidable and substantial adverse impacts would result to visual resources due to temporary construction activities throughout the lagoon under Alternative 2A and Alternative 1B. Mitigation is provided but would not reduce impacts to less than significant. Permanent significant unavoidable and substantial adverse impacts due to placement of CBFs (Alternative 2A only) would also result, and feasible mitigation is not available.

Under both CEQA and NEPA, significant unavoidable and substantial adverse impacts would result temporarily to traffic conditions on segments of Coast Highway 101 and Lomas Santa Fe Drive due to Coast Highway 101 bridge construction (under Alternative 2A) or retrofitting activities (under Alternative 1B and Alternative 1A). Mitigation is provided but would not reduce impacts to less than significant.

During construction, under CEQA, significant unavoidable air quality impacts would result from equipment emissions for Alternative 2A, Alternative 1B, and Alternative 1A. Significant unavoidable air quality impacts would result from operational maintenance activities associated only with Alternative 2A. Mitigation is provided but would not reduce impacts to less than significant.

Under CEQA, significant unavoidable nighttime noise impacts would result from dredging and materials placement activities proposed 7 days a week, 24 hours a day. Noise thresholds limiting sound levels to 75 A-weighted decibels equivalent noise level during a 24-hour period would not be exceeded. However, due to proposed dredging outside of permitted daytime hours, variances would be required from the cities of Encinitas and Solana Beach and the County. With issuance of a variance, 24-hour operations could occur. Feasible mitigation is not available.

Under NEPA, the new inlet and associated CBFs would be a permanent project feature onshore and nearshore along Cardiff State Beach and persons who stray too close to these areas may result in injury should they be thrown against the CBFs or swept into the inlet or rip current. Impacts would be significant and substantially adverse. Mitigation is provided to minimize the public safety hazard.

Significant unavoidable CEQA impacts for Alternative 2A, Alternative 1B, and Alternative 1A would result from construction activities to global climate change and greenhouse gas (GHG) emissions. Mitigation is provided but would not reduce impacts to less than significant.

Cumulative Effects

Under CEQA, significant cumulative impacts were identified for six topic areas. Mitigation is proposed where feasible but would not reduce impacts to below a level of significance. Cumulative effects would result to biological resources, visual resources, traffic, air quality, noise, and global climate change and GHG emissions.

Under NEPA, substantial cumulative adverse effects would result for biological resources, visual resources, and traffic.

The majority of the cumulative effects would persist only throughout the duration of the construction period as they are a result of construction-specific actions. Ultimately, these short-term effects would cease to contribute to a cumulative impact. Examples of cumulative effects that would end after construction include disturbance of bird species due to construction noise, nighttime construction noise, visual impacts of construction equipment in the lagoon, traffic congestion due to Coast Highway 101 bridge work, and construction-related pollutant emissions. Permanent cumulative effects would include the ongoing air quality emissions that would result from maintenance activities, under CEQA for Alternative 2A only.

For GHG emissions due to construction disturbance and equipment, the project adds a considerable contribution to cumulative global climate change. While a single project is unlikely to have a significant impact on global climate change, the cumulative effects of worldwide GHG emissions have been clearly linked to changes in the atmosphere and identified as the main cause of global climate change. The GHG emissions from construction activities associated with lagoon restoration and materials disposal/reuse for Alternative 2A, Alternative 1B, and Alternative 1A exceed the significance threshold of 2,500 metric tons of carbon dioxide equivalent (CO_2e) per year used for CEQA analysis of this project. Mitigation is provided, but it would not reduce the project's contribution impacts to less than significant.

Table ES-4
Summary of Environmental Effects

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
Land Use and Recreation						
Lagoon Restoration	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Hydrology						
Lagoon Restoration	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Materials Disposal	No impact	No impact	No impact	No impact	None required	N/A
Oceanography/Coastal Processes						
Lagoon Restoration	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Water and Aquatic Sediment Quality						
Lagoon Restoration	CEQA: Because the lagoon is listed as a CWA Section 303d impaired waterbody for sedimentation/siltation, the temporary turbidity that would be generated by lagoon restoration activities, most specifically the dredging operations would be considered a potentially significant impact. NEPA: Not substantially adverse	CEQA: Because the lagoon is listed as a CWA Section 303d impaired waterbody for sedimentation/siltation, the temporary turbidity that would be generated by lagoon restoration activities, most specifically the dredging operations would be considered a potentially significant impact. NEPA: Not substantially adverse	CEQA: Because the lagoon is listed as a CWA Section 303d impaired waterbody for sedimentation/siltation, the temporary turbidity that would be generated by lagoon restoration activities, most specifically the dredging operations would be considered a potentially significant impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A, Alternative 1B, and Alternative 1A.* Water Quality-1: All additional conditions, BMPs, and requirements that are identified by regulatory agencies prior to project initiation as part of the permitting process for the project, including Section 404 permit, Coastal Development Permit, Section 1601 permit, Section 401 Water Quality Certification, and the NPDES MS4 permit must be implemented. Compliance with those permit conditions would be monitored through the construction monitoring program and the contractor shall certify to the engineer of record that they have been completed. *Required (CEQA) for Alternative 2A and Alternative 1B* Water Quality – 2: Actively manage water levels by utilizing a cutterhead dredge and/or temporarily closing the lagoon inlet. Cap overdredge pit with sand material to encapsulate material and prevent it from introducing turbidity or pollutants into the water column or released into the environment. The contractor shall certify to the permit holder that the dredge operations have not been responsible for release of sediments into the water column at levels resulting in increased downstream sedimentation.	CEQA: Less than significant
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required	N/A
Geology and Soils						
Lagoon Restoration	CEQA: The proposed bridge improvement and channel-deeping portions of Alternative 2A could result in significant impacts from liquefaction, erosion, settlement, and other unstable geologic conditions that could result in a signficant geologic impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: No impact NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A.* Geology-1: The proposed bridge improvement and channel-deeping portions of the project could result in significant impacts from liquefaction, erosion, settlement, and other unstable geologic conditions. The mitigation of performing geotechnical investigations and implementing site-specific measures recommended in the engineering study to ensure appropriate design for structural stability and reducing unstable geologic conditions is required to reduce impacts to less than significant. After implementation of the measures identified to remediate potentially unstable geologic conditions, certification shall be provided by a California Registered Professional Engineer or Certified Engineering Geologist that states that the measures are in place and the identified liquefaction, erosion, settlement, or other unstable geologic conditions have been adequately remediated to mitigate the potential impact.	CEQA: Less than significant
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: No impact NEPA: Not substantially adverse	None required	N/A
Biological Resources						
Lagoon Restoration	CEQA and NEPA: Construction would result in greater than 50 percent temporal loss of sensitive	CEQA and NEPA: Construction would result in greater than 50 percent temporal loss of sensitive	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required for Alternative 2A and Alternative 1B.* Feasible mitigation not available.	CEQA: Significant and unavoidable

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
	habitats including coastal salt marsh (low- and mid-), open water, salt panne/open water, and tidal mudflats and a significant and substantially adverse short-term direct impact and cumulative impact would result.	habitats including coastal salt marsh (low- and mid-), open water, salt panne/open water, and tidal mudflats and a significant and substantially adverse short-term direct impact and cumulative impact would result.				
	CEQA and NEPA: Belding's savannah sparrow is a year-round resident with potential for direct mortality during vegetation removal, which, coupled with the temporary loss of greater than 50 percent of their nesting habitat, would result in a significant and substantially adverse short-term direct impact.	CEQA and NEPA: Belding's savannah sparrow is a year-round resident with potential for direct mortality during vegetation removal, which, coupled with the temporary loss of greater than 50 percent of their nesting habitat, would result in a significant and substantially adverse short-term direct impact result.	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required for Alternative 2A and Alternative 1B.* Feasible mitigation not available.	CEQA: Significant and unavoidable
	CEQA and NEPA: Construction noise could negatively affect breeding and foraging behavior and would result in a significant and substantially adverse direct and cumulative impact.	CEQA and NEPA: Construction noise could negatively affect breeding and foraging behavior and would result in a significant and substantially adverse direct and cumulative impact.	CEQA and NEPA: Construction noise could negatively affect breeding and foraging behavior and would result in a significant and substantially adverse direct and cumulative impact.	CEQA: Less than significant NEPA: Not substantially adverse	*Required for Alternative 2A, Alternative 1B, and Alternative 1A.* Feasible mitigation not available.	CEQA: Significant and unavoidable
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	None required.	N/A
Cultural Resources						
Lagoon Restoration	CEQA: Accidental disturbance to nearby cultural resources could occur during construction use of the existing access road near sites CA-SDI-13903 and CA-SDI-20,816 and result in a potentially significant impact. NEPA: Not substantially adverse	CEQA: Accidental disturbance to nearby cultural resources could occur during construction use of the existing access road near sites CA-SDI-13903 and CA-SDI-20,816 and result in a potentially significant impact. NEPA: Not substantially adverse	CEQA: Accidental disturbance to nearby cultural resources could occur during construction use of the existing access road near sites CA-SDI-13903 and CA-SDI-20,816 and result in a potentially significant impact. NEPA: Not substantially adverse	No impact	*Required (CEQA) for Alternative 2A, Alternative 1B, and Alternative 1A.* Cultural-5: Exclusionary fencing shall be used to avoid inadvertent disturbance of cultural resources in proximity to the APE, staging areas, and access roads. The temporary exclusionary fencing shall be placed parallel to, but outside of the APE, staging areas, or the access road's existing limits of disturbance in locations where within 15 feet. Specifically, exclusionary fencing shall be placed parallel to existing access roads used for construction access near sites CA-SDI-13903 and CA-SDI-20,816.	CEQA: Less than significant
	CEQA: Ground-disturbing excavation at the new Coast Highway 101 bridge and inlet where there is the possibility for unknown buried cultural resources in stable sediments could result in a potentially significant impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	*Required (CEQA) for Alternative 2A only.* Cultural-1: Implementation of Alternative 2A requires that a Monitoring and Discovery Plan shall be prepared and implemented prior to the start of ground-disturbing activities at the new Coast Highway 101 bridge and inlet to identify areas with the potential for intact cultural deposits and provide protocols in the event archaeological material is encountered during construction of the project. If previously unknown resources are identified during construction, the lines of communication and measures outlined in the Monitoring and Discovery Plan would be followed, including applicable late discovery protocols per Section 106. These measures would include: • Ground-disturbing construction activity would be temporarily halted by the project archaeologist and/or Native American monitor at the location of the find and redirected elsewhere until the find is assessed by a qualified archaeologist for eligibility to the NRHP and CRHR. • If the find is determined by the project archaeologist to be potentially eligible for the NRHP or CRHR: o on stable surfaces, an exclusionary zone would be set up around the find and marked (e.g., lath and flagging or silt fencing). o the cultural resources principal investigator would contact the Corps and County DPR to formulate a plan for evaluation or avoidance through redesign. o dredging or mechanical ground-disturbing activities would not resume in that location until the principal investigator is notified by the Corps and County DPR that activities may resume. Evaluation procedures would include: • subsurface excavation (in stable sediments), • cataloging and laboratory analysis of recovered cultural materials, • curation of the artifact collection at an approved regional facility, • preparation of a draft and final technical report pursuant to CEQA and NEPA documenting the discovery and addressing regional research issues, and • consultation with local Native Americans in accordance with Section 106 regarding the significance and treatment of any cultural	CEQA: Less than significant

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
					resources encountered. Cultural-2: Implementation of Alternative 2A requires that cultural resources monitoring shall be required during mechanical excavation associated with the Coast Highway 101 bridge and inlet. A qualified archaeological monitor and Native American representative shall be present during all mechanical excavations in sediments with the potential for NRHP- or CRHR-eligible cultural resources. Cultural-3: Implementation of Alternative 2A requires that a training session for project construction personnel shall be conducted by a qualified archaeologist prior to the start of ground-disturbing activities at the Coast Highway 101 bridge/inlet. The training session shall include a review of required monitoring locations and communication protocols, types of cultural resources that might be encountered, cultural resources responsibilities, protection procedures, and avoidance measures. Cultural-4: If human remains are encountered during the proposed project: • Work at that location will be suspended and redirected elsewhere. • Corps and County DPR will be immediately notified of the discovery. • Remains will be left in place and exclusionary fencing will be placed in a 50-foot radius around the discovery. • Under the provisions of the California PRC Section 7050.5, the County Coroner will be notified in the event of discovery of human remains. • If the remains are either determined to be or there is reason to believe they are Native American, the coroner will notify the NAHC within 24 hours. • Disposition of Native American human remains on non-federal lands is within the jurisdiction of the NAHC. The Corps and County DPR, as lead agencies for the proposed project, will initiate consultation with the NAHC. As part of the consultation process, the NAHC will notify persons most likely to be descended (MLD) from the remains. No ground-disturbing work will occur in the location of the remains until consultation between the NAHC, MLD, Corps, and County DPR has been completed, and notification by the Corps and County DPR that construction activities may resume. • If the remains are discovered in situ, they will be left in place and covered with weather-proof materials such as a tarp or plywood. If they are discovered in spoils, the remains will be placed in a labeled bag and, on approval by the MLD, transported to a secure locked container. An osteologist or a forensic anthropologist will, in consultation with the MLD, inspect fragmentary bones that are suspected to be human but cannot be identified as such in the field.	
Materials Disposal	No impact	No impact	No impact	No impact	None required	N/A
Paleontological Resources						
Lagoon Restoration	CEQA: Accidental disturbance of paleontological resources could occur during construction in areas with subsurface potential and is a potentially significant impact. NEPA: Not substantially adverse	CEQA: Accidental disturbance of paleontological resources could occur during construction in areas with subsurface potential and is a potentially significant impact. NEPA: Not substantially adverse	CEQA: Accidental disturbance of paleontological resources could occur during construction in areas with subsurface potential and is a potentially significant impact. NEPA: Not substantially adverse	CEQA: No impact NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A, Alternative 1B and Alternative 1A.* Paleo-1: A monitoring program during grading, trenching, or other excavation into undisturbed rock and sediment layers beneath the soil horizons and a fossil recovery program, if significant paleontological resources are encountered, shall be implemented. A County-approved paleontologist shall be contracted to perform paleontological resource monitoring and a fossil recovery program if significant paleontological resources are encountered during grading, trenching, or other excavation into undisturbed rock layers beneath the soil horizons in proximity to the Delmar Formation along the North Rios Avenue access road. The following shall be completed: • A County-approved paleontologist shall perform the monitoring (and recovery, if necessary, and report preparation) duties pursuant to the most current version of the County of San Diego Guidelines for Determining Significance for Paleontological Resources. The contract provided to the County shall include an agreement that the grading/ trenching/excavation monitoring will be completed. The contract shall include a cost estimate for the monitoring work and reporting. • The cost of the monitoring shall be bonded. Paleo-2: A final Paleontological Resource Mitigation Report that documents the results, analysis, and conclusions of all phases of the Paleontological Monitoring Program shall be prepared, if excavation into the Delmar Formation occurs and monitoring is required.	CEQA: less than significant
Materials Disposal	No impact	No impact	No impact	No impact	None required	N/A
Visual Resources						
Lagoon Restoration	CEQA and NEPA: Construction activities would result in a direct temporary and cumulative significant and substantial adverse impact to the visual quality and character of the lagoon.	CEQA and NEPA: Construction activities would result in a direct temporary and cumulative significant and substantial adverse change in the visual quality and character of the lagoon.	CEQA: Less than significant NEPA: Not substantially adverse	No impact	*Required for Alternative 2A and Alternative 1B.* Visual-1: Temporary screening would be placed around construction areas that are secured with a chain-link fence (such as booster pumps, staging areas, etc., as shown in Figure 2-15) to provide visual screening of the equipment located within the secured area. Screening could be brown or green mesh or other similar screening material attached to the fencing that would visually hide or obscure the interior of the fenced areas. The screening would extend as high as the chain-link fence, which would range from approximately 6 to 10 feet, depending on the area being secured.	CEQA: Significant and unavoidable
	CEQA and NEPA: CBFs would introduce a built linear feature and the contrast would be strong for some beach users. Although efforts would be made to soften the	No impact	No impact	No impact	*Alternative 2A only.* No feasible mitigation measures available.	CEQA: Significant and unavoidable

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
	appearance via naturalized finish and partial to full burial of the feature, the contrast would remain substantial. Impacts would be significant and substantially adverse.					
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Traffic and Circulation						
Lagoon Restoration	CEQA and NEPA: Bridge replacement construction activities would result in a substantially adverse and significant temporary direct and cumulative traffic impact due to capacity reductions causing traffic operations to degrade from LOS A to LOS F on a segment of Coast Highway 101, south of Chesterfield Drive.	CEQA and NEPA: Bridge retrofitting activities would result in a substantially adverse and significant temporary direct and cumulative traffic impact due to capacity reductions causing traffic operations to degrade from LOS A to LOS F on a segment of Coast Highway 101, south of Chesterfield Drive.	CEQA and NEPA: Bridge retrofitting activities would result in a substantially adverse and significant temporary direct and cumulative traffic impact due to capacity reductions causing traffic operations to degrade from LOS A to LOS F on a segment of Coast Highway 101, south of Chesterfield Drive.	No impact	*Required for Alternative 2A, Alternative 1B, and Alternative 1A.* Traffic-1: Prepare work zone traffic control plans for lane closures and related construction along Coast Highway 101. The work zone traffic control plans shall be prepared in accordance with the California Manual of Uniform Traffic Control Devices (CAMUTCD), Caltrans Standard Plans (2010), and current standards and best practices of the reviewing and approving agencies. These plans are intended to accommodate workers within the roadway, while facilitating continued circulation for road users (motorists, bicyclists, and pedestrians including persons with disabilities in accordance with the ADA) through the work zone. Traffic-2: Provide advanced notification to motorists that delays and traffic congestion will occur during bridge construction and retrofitting activities to encourage avoidance of the construction area. This notification may be accomplished through various measures such as information and detour routes included on the project website; traffic details included in all notifications sent to local residents; traffic and alternative route information published in local media; and physical traffic control measures, such as temporary signage located at various distances from the construction area.	CEQA: Significant and unavoidable
	CEQA and NEPA: Bridge replacement construction activities would result in a substantially adverse and significant direct and cumulative traffic impact due to reduction in capacity and the subsequent redistribution of northbound traffic to I-5 via Lomas Santa Fe Drive, causing traffic operations to degrade from LOS E to LOS F on a segment of Lomas Santa Fe Drive from Solana Hills Drive to I-5.	CEQA and NEPA: Bridge retrofitting activities would result in a substantially adverse and significant direct and cumulative traffic impact due to reduction in capacity and the subsequent redistribution of northbound traffic to I-5 via Lomas Santa Fe Drive, causing traffic operations to degrade from LOS E to LOS F on a segment of Lomas Santa Fe Drive from Solana Hills Drive to I-5.	CEQA and NEPA: Bridge retrofitting activities would result in a substantially adverse and significant direct and cumulative traffic impact due to reduction in capacity and the subsequent redistribution of northbound traffic to I-5 via Lomas Santa Fe Drive, causing traffic operations to degrade from LOS E to LOS F on a segment of Lomas Santa Fe Drive from Solana Hills Drive to I-5.	No impact	See Traffic-1 and Traffic-2.	CEQA: Significant and unavoidable
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Air Quality						
Lagoon Restoration	CEQA: Construction-generated ROG and NO_X emissions would exceed applicable mass emission thresholds and result in a significant direct and cumulative impact. NEPA: Not substantially adverse	CEQA: Construction-generated ROG and NO_X emissions would exceed applicable mass emission thresholds and result in a significant direct and cumulative impact. NEPA: Not substantially adverse	CEQA: Construction-generated ROG and NO_X emissions would exceed applicable mass emission thresholds and result in a significant direct and cumulative impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A, Alternative 1B, and Alternative 1A.* AQ-1: Off-road construction diesel engines not registered under ARB's Statewide Portable Equipment Registration Program that have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 3 California Emissions Standards, unless such an engine is not available for a particular item of equipment. Tier 2 engines will be allowed on a case-by-case basis when the Contractor has documented that no Tier 3 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete construction. Documentation shall consist of signed written statements from at least two construction equipment rental firms. AQ-2: Harbor craft with a Category 1 or 2 marine engine, such as tugboats used for materials disposal, shall meet, at a minimum, EPA Tier 2 marine engine emission standards. AQ-3: Dredging equipment shall be electric, if feasible, based on availability and cost. AQ-4: Contractors shall use alternative fueled (e.g., compressed natural gas [CNG], liquefied natural gas [LNG], propane), or electric-powered construction equipment where feasible, based on availability and cost. AQ-5: The following measures shall be implemented by the construction contractor to reduce fugitive dust emissions associated with off-road equipment and heavy-duty vehicles: • Exposed surfaces (e.g., unpaved access roads) shall be watered, as necessary, to control fugitive dust. • Sweepers and water trucks shall be used to control dust and debris at public street access points. • Dirt storage piles shall be stabilized by chemical binders, tarps, fencing, or other suppression measures.	CEQA: Significant and unavoidable

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
					• Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads. • Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling. • Enforce a 15-mph speed limit on unpaved surfaces.	
	CEQA: NO_X emissions associated with ongoing operational maintenance activities would exceed the applicable mass emission threshold and result in a significant direct and cumulative impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Alternative 2A only (CEQA).* See AQ-1 through AQ-5	CEQA: Significant and unavoidable
Materials Disposal	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	N/A	N/A
Noise						
Lagoon Restoration	CEQA: Noise impacts associated with nighttime dredging would be significant. NEPA: Not substantially adverse	CEQA: Noise impacts associated with nighttime dredging would be significant. NEPA: Not substantially adverse	CEQA: Noise impacts associated with nighttime dredging would be significant. NEPA: Not substantially adverse	No impact	No feasible mitigation measures available.	CEQA: Significant and unavoidable
Materials Disposal	CEQA: Noise impacts associated with nighttime material placement would be significant. NEPA: Not substantially adverse	CEQA: Noise impacts associated with nighttime material placement would be significant NEPA: Not substantially adverse	CEQA: Noise impacts associated with nighttime material placement would be significant NEPA: Not substantially adverse	No impact	No feasible mitigation measures available.	CEQA: Significant and unavoidable
Socioeconomics and Environmental Justice						
Lagoon Restoration	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Public Services and Utilities						
Lagoon Restoration	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Materials Disposal	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	No impact	None required	N/A
Hazardous Materials and Public Safety						
Lagoon Restoration	CEQA and NEPA: The new inlet and associated CBFs would be a permanent project feature onshore and nearshore along Cardiff State Beach and persons who stray too close to these areas may result in injury should they be thrown against the CBFs or swept into the inlet or rip current. Impacts would be significant and substantially adverse.	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required for Alternative 2A only* HAZ-1: The project applicant shall continue coordination with California Department of Parks and Recreation to relocate the mobile lifeguard tower (State Lifeguard Tower No. 6) closer to the new inlet location. HAZ-2: The project applicant shall install signs at the new inlet to enhance public awareness to avoid potential safety hazards associated with the new inlet location and associated CBFs.	CEQA: Less than significant
Materials Disposal	CEQA: Unforeseen wastes and hazardous materials could be dredged from the lagoon and create a public health hazard from management or disposal and result in a significant impact. NEPA: Not substantially	CEQA: Unforeseen wastes and hazardous materials could be dredged from the lagoon and create a public health hazard from management or disposal and result in a significant impact. NEPA: Not substantially	CEQA: Unforeseen wastes and hazardous materials could be dredged from the lagoon and create a public health hazard from management or disposal and result in a significant impact. NEPA: Not substantially	CEQA: Less than significant NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A, Alternative 1B, and Alternative 1A.* HAZ-3: A sediment management plan will be developed and implemented to test dredged materials for proper placement in the overdredge pit or for off-site transport and proper disposal and to be in compliance with local, state, and federal regulations. The plan shall specify that if unknown contamination or other buried hazards are encountered during dredging, procedures must be carried out according to applicable regulations. Any material encountered that appears to contain contaminants will be handled in accordance with local, state, and federal guidelines, and permit conditions.	CEQA: Less than significant

	Alternative 2A	Alternative 1B	Alternative 1A	No Action/No Project Alternative	Mitigation Measure	CEQA Level of Significance after Mitigation
	adverse	adverse	adverse			
Global Climate Change and Greenhouse Gas Emissions						
Lagoon Restoration	CEQA: Construction-related and operational GHGs would exceed the recommended level of significance and result in a significant and adverse cumulative impact. NEPA: Not substantially adverse	CEQA: Construction-related GHG emissions would exceed the recommended level of significance and result in a significant and adverse cumulative impact. NEPA: Not substantially adverse	CEQA: Construction-related GHG emissions would exceed the recommended level of significance and result in a significant and adverse cumulative impact. NEPA: Not substantially adverse	CEQA: Less than significant NEPA: Not substantially adverse	*Required (CEQA) for Alternative 2A, Alternative 1B, and Alternative 1A.* GHG-1: On-site material hauling shall be performed with trucks equipped with on-road engines to the extent practicable. GHG-2: Limit deliveries of materials and equipment to the site to off-peak traffic congestion hours to the extent practicable. GHG-3: Restrict material hauling on public roadways to off-peak traffic congestion hours to the extent possible. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion. GHG-4: Use high-efficiency lighting and Energy Star-compliant heating and cooling units. Implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.	CEQA: Significant and unavoidable
Materials Disposal	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	Considered together with Lagoon Restoration	N/A	N/A